

TOP-END PERFORMANCE

"Performance Engines and Suspension components for Street and Track"

A division of T.E.P. Inc.

- 7452 VARNA AVE. N. HOLLYWOOD CA. 91605
 - (818) 764-6768 or (818) 764-1901 (818) 764-0155 fax 24 Hrs.
 - e-mail: topend @ racetep.com Web: <http:// www.topendperf.com>
-

Summer and Fall 1999



Starion and Conquest Catalog

- ◆ Over 42 pages
- ◆ Totally Updated
- ◆ Current Prices
- ◆ Lots of pictures

You can also obtain a printed version of this catalog

By sending a large 9" X 12" self addressed envelope with \$2.00 to ...

Top-End Performance
StarQuest Catalog
7452 Varna Ave
N.Hollywood CA 91605

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1999 Starion Conquest Performance Catalog

Welcome to the 1999 Top-End Performance Starion / Conquest Catalog. As usual I'm sure we forgot all sorts of stuff and will be adding on to it throughout the year. If there is something that you are looking for but do not see please give us a call, fax, or e-mail.

The catalog has been growing in content and quality over the last 5 years and may even make it to a actual printed (Instead of photo-copied) version later this year. We try to keep costs down on the catalog so we can keep parts prices down, after all, the catalog itself doesn't make your car go faster, handle better, or stop better does it ?

The pricing in this catalog should stay pretty stable throughout the year but double check when you call in an order just to be safe. Some items are beyond our control and price changes can happen. Prices are subject to change without notice.

Contact Us:

Phone	(818) 764-1901 or (818) 764-6768
Fax	(818) 764-0155 24 hrs.
e-mail	TopEnd@racetep.com
Web	http://www.starion-conquest.com

There is a lot of great stuff on the Web site so be sure and check it out.

Our Hours:

Monday - Friday	8:00am - 5:30pm Pacific Time
Saturday	Varies with Racing Season. Call First
Sunday	Not a Chance

Methods of Payment:

Visa	Mastercard
American Express	Discover Card
ATM Cards (If you are here)	
Cashiers Checks, Money Orders	
Personal Checks (Allow min. 5 days to clear)	
Occasionally interesting forms of trade or barter.	

We Ship Via:

UPS.	All available methods. Domestic and International
Fed-EX	Your Account or Ours
US Mail	Usually twice a week since it is such a pain in the butt.
Air Freight	For shipping engines in crates. We have a great carrier with amazingly good prices. Call for rates

C.O.D. Orders:

- We ship C.O.D. ONLY on orders UNDER \$200.00 to *very established* customers only and never on Special Order Items.
- All C.O.D.'s are sent Cashiers Check Only. No Exceptions.
- Sorry about the C.O.D. restrictions but we have gotten hosed so many times on refused shipments, bogus checks (Yes, even Company checks)

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New Starion / Conquest Heads....

Finally an affordable replacement for the chronically cracked, warped and otherwise abused 2.6 head. | more combing junk yards in search of a GOOD USED head or buying Bogus rebuilt heads that have more problems than your old one. No more crack repairs or welding up jet valve passages. Unlike some other place that sell USED and RECONDITIONED heads we only sell NEW castings.

The Jet valves are the biggest cause of cracking in the 2.6 head. They are an emissions throwback to t 70's when the engine was first used. They are not needed for Smog and do not effect how the engine runs, bu will keep you from cracking another head.

- **Brand New Castings**
- **Extra Cooling passages. Super Dense Casting**
- **No Jet Valves.**
- **Available bare or complete ready to bolt on**
- **Use Your Old Rockers and Shafts**

New Bare Cylinder Head

\$550.00

- Has valve guides and Un-Machined seats. Use all your old valves, springs, rockers, etc.

New Street Prepared Cylinder Head

\$1195.00

- New Casting with no jet valves
- All new stock valves
- NEW TEP Performance ground camshaft
- 3 angle Valve job with hand lap and back-cut.
- Blanchard ground surface
- Heavy Duty Valve Springs and New Retainers
- All New Manifold Studs
- New Heavy Duty Head Bolts
- Complete head gasket set with SS Ex Man Gasket

Optional Stuff: Add to price to street prepared head

- Street Port and Polish **\$280.00**
- Match Intake Manifold to head **\$60.00**
- Stainless Steel Valve Upgrade **\$165.00**
- Full race Port, Polish, Match **\$450.00**

Or... If you already have a lot of the parts, the gaskets, etc. and just want a NEW Non-Jet Valve head without all the extras and the machine work done... You're in luck.

NEW Non-Jet Valve Head

\$695.00

New Intake and Exhaust valves

3 Angle Racing Valve Job with hand lap and back-cut.

TOP-END PERFORMANCE



IMPORT ENGINEERING

7452 VARNA AVE. N. HOLLYWOOD CA. 91605

(818) 764-6768 or (818) 764-1901 (818) 764-0155 FAX

e-mail: topend@racetep.com Web: <http://www.racetep.com>

Starion / Conquest Ultimate Street / Strip Power Package.

Part# SCU-1

No Stages, No Compromises, No B.S. This is the finest power package you can install on your Starion or Conquest.

This combination of bolt on parts and exhaust components is specifically designed for 88-89 (Or 87 with Upgraded ECU) Starions and Conquests **. This package will give you the maximum HP available in an otherwise stock engine. If your engine is old, worn out, smokes like a freight train, has low oil pressure, knocking balance shafts, etc, this package is not for you until you freshen up the engine. This combination is capable of 325 hp in a good running stock Starion / Conquest. As with every upgrade we offer you need to make sure everything is in good working order before you proceed with it. If you have a good running, non-overheating, no stumbles or stutters car that you want to drive out to the drag strip and run at least a Mid-13 ¼ mile (Maybe even better) this is the system for you.

SCU-1 Kit Contents:

- Complete T3/T4 Hybrid Turbo Conversion Package.
 - New T3/T4 Hybrid Turbocharger.***
 - Internal Wastegate Swing valve Assembly.
 - Dual Port Wastegate Actuator.
 - Steel Braided Oil Feed Line and Water Line Kit.
 - Bolt-In 2.5" Downpipe with 3 wire O2 sensor.
 - 3" Inlet pipe from Turbo to Mass Air Sensor.
 - Manual Boost Controller
-
- TEP Camshaft Upgrade. New Billet camshaft.
 - 2.25" Over The Valve Cover pipe with HKS Racing Bypass Valve.
 - Intercooler Upgrade. Spearco 3.5" Core. Bolt in unit with needed plumbing.
 - Mandrel Bent Intercooler Plumbing kit with Silicone Couplers.
 - Halmeter AF/30 Air Fuel Ratio Monitor.
 - Bosch Racing Fuel Pump
 - Cartech Adjustable Rising Rate Fuel Regulator
 - K&N Air Filter for Stock Air Box
 - 2.5" High Flow Catalyst for under car****
 - 3" Walker Mega-Flo Rear muffler and 3" Chrome Tip.****

Complete package: One big bundle of HP in a cardboard box.

\$3500.00 + \$30.00 UPS Ground Shipping

** Yes it can be used on a 1986 but due to the poor fuel volume on these cars it will be mandatory to use our AIC system to insure adequate fuel volume. Add \$750.00 to kit price for AIC kit.

*** Ceramic Ball Bearing Turbo Upgrade. Add \$525.00

**** Does not include piping. You have the 2.5" pipe installed locally from our Downpipe back.

Starion / Conquest Performance packages

Street Engine Rebuild Package

\$995.00

- 4 New Hypereutectic Pistons. (Std, .030, .040 over)
- Total-Seal Piston Rings
- Balance Shaft Eliminator kit
- Timing Component Kit for use with balance eliminator
- Clevite 77 rod and main bearings
- Head gasket set
- Lower end gasket set
- New Head bolts
- Heavy Duty Valve spring set
- TEP Camshaft Upgrade
- New water pump

Drag Race Engine Rebuild Package

\$2050.00

- JE Forged 8.0:1 .040 over pistons
- Total-Seal Piston Rings
- Clevite 77 rod and main bearings
- Head set and Lower End Set
- Balance Shaft Eliminator kit with timing component kit
- High Volume Oil Pump
- NEW TEP Non-Jet Valve Bare Head Casting
- TEP camshaft upgrade with H/D valve spring set
- ARP Head stud kit
- New water pump

Street Strip Turbo Package

\$995.00

- NEW 14G Sport Turbo
- Stainless Steel Oil Feed Line
- 2.5" Downpipe with new 1 wire O2 sensor
- Manual Boost Controller
- **Upgrade to 16G or SUPER-60 for \$300.00 more.**

Intercooler Package

\$1095.00

- TEP Bolt-In Spearco Intercooler kit.
- Intercooler plumbing kit to eliminate cloth hoses
- Over the Valve Cover Pipe with HKS Racing Bypass Valve

Performance Handling Package

\$875.00

- Set of 4 TEP Lowering Springs
- Set of 4 Tokico Gas Struts
- Pair of Sway bars with all Urethane mounting bushings

Performance Braking Package

\$390.00

- Steel Braided Brake line kit
- Repco Metal Master Front Pads
- Repco Metal Master Rear Pads
- Gas Slotted Front Brake Rotors

See next page for more

Stage-1 Kit:**\$2250.00**

- T3/T4 Conversion,
- TEP Camshaft upgrade,
- Halimeter AF/30 Air fuel ratio monitor
- Dial-A-Boost controller.
- Over-the-Valve-Cover Pipe with HKS Adjustable Racing Compressor Bypass Valve.

NEW PRODUCTS

Hypereutectic Pistons for 2.6T

- Much stronger than stock pistons
- Press fit pins. No rod modifications needed.
- Great replacement for street engines
- Up to 300HP applications.
- Stock compression ratio
- Available in .020, .030, .040 overbore

\$69.00 ea.**Front Air Dams for Starion / Conquest**

- 1 piece front air dam
- Factory replacement part
- Looks exactly like the one on your car (except it is not broken yet)
- Exact replacement for the early 3 piece air dams.
- White gel-coat finish

\$279.00 + \$20.00 shipping**HKS EVC-EZ**

This is a great piece. The easiest to use and most reliable Electronic boost controller available. Simple On-Off turn a knob to adjust boost control. Up to 200% over baseline wastegate.

- No Fuzzy Logic.
- No Learning
- Uses the EVC-4 Transducer for greater accuracy

\$399.00

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High Flow Intake Pipe with A.I.C. System

For those of you that want to make in the high 300HP range but do not want the expense and hassle of switching to a complete new management system we have developed a great bolt on **Auxiliary Injection System** that includes our extremely popular 2.25" high flow "Over the Valve Cover Pipe" with the injector bosses installed and a complete Injector, Fuel Pump, Plumbing, and Electronics kit to control them. It cleans and works with all the stock components as well as the Trust and Grex strut tower braces. This kit DOES NOT REPLACE THE STOCK INJECTORS. It is IN ADDITION TO the stock system.

This kit is perfect for 86's with the terrible simultaneous injectors; or for any year where you want to retain the smog legal injection system and add the capability to safely run **Big Turbos** and **Big Boost**.

The Complete Kit Includes.....

- 1) High Flow Intake Pipe
- 2) Injector Bosses, Weld On
- 2) High Flow 440cc Fuel Injectors
- 1) Bosch High Flow Fuel Injection Pump
To replace stock pump or in addition to it.
- 1) Plumbing kit with necessary hose, tees, fittings,
- 1) Electronic Control unit and Wiring Harness
Boost and RPM Adjustable.

\$950.00
Complete kit



Add the HKS Racing Bypass Valve to this system for \$169.00 when buying it complete.
Add the HKS Racing bypass valve to your existing system for \$199.00

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STARION PROGRAMMABLE INJECTION AND INTAKE SYSTEM.

The conversion that makes your Starion / Conquest run like an Eclipse. Coupled with our T3/T4 conversion and appropriate engine work it is no problem to make over 400hp and rev cleanly to 7500 rpm

This system is based on you sending us a stock intake Manifold, Throttle Body, and Injector Mixer housing. It will work with the stock intercooler plumbing and over the valve cover pipe. The kit does require a fair amount of mechanical and tuning ability. A laptop computer is required to tune the system to your vehicle.

The conversion consists of.....

- 1) Intake manifold with 4 port injector mounts
Water passages eliminated for cooler intake temp.
- 4) 52 lb./hr. Fuel Injectors
- 1) Custom fuel rail with integral linkage bracket support
- 1) 5MM enlarged stock throttle body with TPS mount.
- 1) Complete Electromotive **TEC-II management system**
Or... **Haltech F9A Fuel Management** Only for use with your original ignition.
Includes all sensors, tuning guide, Baseline Fuel Program, etc.
- 1) Crank trigger wheel and magnetic pickup
- 1) Machine **your** pulley, mount trigger wheel, make pickup brackets
- 1) Set 8mm spark plug wires
- 1) Rising rate boost referenced fuel pressure regulator (Stand Alone)
- 1) Misc. hook-up wire and connectors

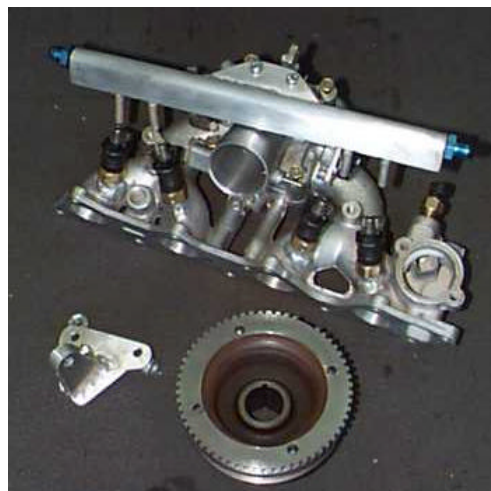
TEC-2 System

\$3295.00 (Please allow 3-4 weeks lead time for manifold and kit)

HALTECh F9A System

\$2995.00 (Please allow 3-4 weeks lead time for manifold and kit)

We get asked why we do 2 different systems and what the differences are. The TEC-2 is the ultimate in Fuel and Ignition control. It will replace all the Mits. Electronics that run your engine. Great for Street or Race applications. Use it for any vehicle that you want complete control over how the engine runs. The HALTECH F9A system is much easier to install and slightly easier to tune. It is for applications where you want the convenience and control of a 4 injector system but do not want to hassle the crank trigger and more complicated install of the TEC-2. It retains the stock distributor and is good for street and track applications up to about 18 psi on pump gas. It retains all the original Distributor and factory ignition controls, knock sensor, knock box, etc.



4 injector conversion with completed crank trigger using your intake manifold and crank pulley.



TEC-2 Electronics package complete.

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Bolt-On Mandrel Bent 2.5" Downpipes

Bolt on Downpipes with 02 sensor ports for all the stock, 14G and 16g turbos as well as our T3/T4 conversion.

These pipes will bolt to the stock exhaust system and use the original swivel ball exhaust donut. Very simple install allows you to switch back to the stock pre-cat and secondary air filter for smog purposes.



This is one of the very best bolt-on upgrades you can do for any Starion / Conquest.

- Increase the Turbo response 10%-15%
- Quicker Turbo Spool-Up
- Less Heat
- Better Fuel Economy
- 8-10 HP even at stock boost

The Downpipe is available with a 3 wire heated 02 sensor or a 1 wire standard 02 sensor.

The advantage of the 3 wire 02 sensor is that it heats up on its own and stays lit up regardless of engine load. This is very important for a stable idle and a must for using an Air Fuel Ratio Monitor like the HALMETER AF/30.

Downpipe with 3 wire 02....\$175.00

Downpipe with 1 wire 02....\$159.00

This Part Is NOT Smog Legal anywhere in the Universe. It is a Racing and Off-Road Part Only. Be sure and keep your original parts for smog purposes.

Starion Conquest Camshaft Upgrades

The TEP Camshaft upgrade is a purpose developed Turbo camshaft, unlike the HKS and Baker grinds. It was designed specifically for the 2.6 Turbo with the stock Fuel Injection system. It will drop in with no other mods. It idles great and gives a broad power band.

As to the question of how much power it makes ? Well, that depends on the other mods done to the system. On a totally stock 88-89 running stock boost it will make very little difference. However, the same car at 14 psi boost will make an additional 8-12 HP. This cam in a T3/T4 equipped car will make 15-20 more with the cam.

In a Turbo car the cam enables the turbo to pack in more air per intake cycle. If the system is not maxed out (like with a stock turbo at stock boost) the extra lift and duration does not do much. As you make other mods and increase the boost the benefits of the cam profile change become greater. So, the bottom line is...If you have a car running more than stock boost, with exhaust system and intake work, chances are you will be very happy with the cam upgrade. if your car is totally stock and plans to stay that way, the cam may not be for you.



Our camshaft upgrades for the Starion and Conquest are available in both Hydraulic and Mechanical Adjuster styles. We also do a couple of very aggressive grinds for those of you running programmable management systems on ROAD RACE ONLY CARS. These cams are only meant to operate in the 5000-8000 RPM range and are not streetable.

We sell our cams 2 ways.

NEW billet performance grinds.....	\$199.00
Reground on YOUR CORE.....	\$129.00

The NEW cams are on an outright basis with no core needed. The reground cams are done only on your cam requires that you send in your core FIRST. We will grind it and return it. Typical turnaround time is 3-5 days.

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-

We are a **Turbonetics** W/D. We supply their complete line of Turbochargers and components at the best possible prices.

Contact via Phone, e-mail, or Fax for pricing on all **Turbonetics** products.

Turbos – Wastegates – Turbo Components.



HKS EVC-EZ.

We love this thing. Very simple and straight forward. No Fuzzy Logic. No fancy lights and Sounds. No programming or learning boost curves. Uses the same high quality transducer as the EVC-4 but does away with all the confusing stuff. A power button and a knob to turn your boost up and down. Super accurate and easy to install.

\$399.00

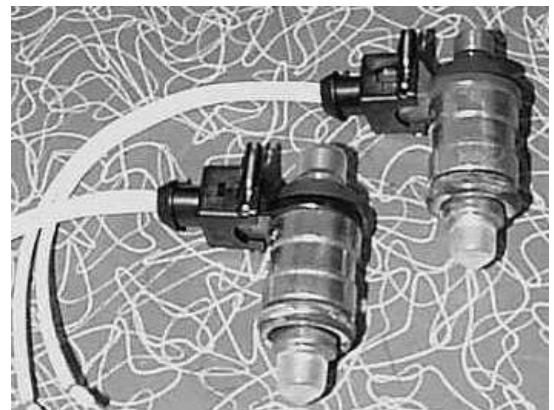
NEW Stock Starion / Conquest Fuel Injectors

We know how much you dread needing to buy new injectors. They are very expensive. But when you need them , you need them. If your injectors are cracked and leaking you stand a good chance of catching your car on fire. That is a bad thing.

There are NO AFTERMARKET INJECTORS AVAILABLE for the Starion / Conquest. Only original units. We carry them New for all years. All New Injectors include the seals and new injector connectors.

86 Injectors \$319.00 each

87-89 Injectors \$335.00 each



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Complete Engines:

We offer so many combinations of complete engines that it is impossible to list them all. Here are some of the common combinations. All engine prices are based on using your rebuildable core. If you do not have a good core or you want to buy an engine outright with no exchange add \$450.00 to the pricing. You can then keep all your old stuff and keep driving your car while you wait for your new engine to be built and shipped. It is getting increasingly harder to obtain cores for this purpose. If you want us to do it this way be prepared that it could take us a couple of weeks to find a core worth rebuilding. All complete engine include our NEW Non-Jet valve head casting. We will not build any complete engines using an old head core. We can also do any combination you might want, contact us for pricing and details.

Stage-3 Engine:

\$3800.00

Full-Tilt street and drag race engine. For T3/T4 and NOS. Your choice of compression ratio. JE pistons, Total-Seals, race prepped rods, Race prepped crank, New head casting, Race Ported and polished, Racing Camshaft and dual valve spring upgrades, ARP head studs and rod bolts, Lightened flywheel with Pro-Grip Race clutch, Balance shaft eliminator. Balanced and blueprinted. All new timing components and high volume oil pump. Assembled valve cover to oil pan.

For Forged Connecting rods add \$600.00

For ceramic coating on pistons and valves add \$200.00

Performance Street Engine:

\$3000.00

Excellent street and occasional race use. Very reliable in the low 300 HP range. Great for use with T3/T4. 8.0:1 compression

Forged JE pistons. Total-Seal rings. Rods rebuilt and bushed for floaters with ARP rod bolts. Crank Turned and micropolished. New non-jet valve head casting. Street ported and polished with ARP head studs. Street cam upgrade with H/D single valve springs. Balance shaft eliminator with complete rotating assembly electronically balanced. Lightened stock flywheel with H/D street clutch. All new timing components and standard oil pump.

Standard Street Rebuild:

\$2800.00

This is the standard stuff we do to rebuild a Starion/Conquest engine for reliable street use with mild add on upgrades and no more than 12-14 psi boost with fairly small turbos (Stock Turbo or Mits Sport 14G units)

Cast replacement pistons with Total-Seal rings. Rods resized and ARP bolts installed. Crank turned and micropolished. Balance shafts eliminated and complete assembly balanced. New Non-Jet Valve head casting. Stock camshaft and H/D single valve springs. New H/D head bolts. Flywheel Lightened.

STARION / CONQUEST 400 HP COMBO

420 HP @ 19 PSI BOOST - 5800 RPM @ SEA LEVEL RACE GAS

This is what we do when we are building a 400+ HP Starion or Conquest.

STAGE-3 ENGINE:

\$3800.00

This is the price for the engine only. Not the Turbo, F.I., Etc.

ALL ENGINES BUILT USING YOUR GOOD CORE. PRICE VARIES IF WE NEED TO SUPPLY HEAD AND BLOCK CORES. SEE THE CATALOG LISTING FOR SPECIFIC PRICES ON ENGINE ITEMS.

- 8.0:1 FORGED JE PISTONS WITH TOTAL SEAL RINGS
- HIGH HEAT COATED PISTONS AND VALVES
- RACE PREPPED CRANK
- RACE PREPED RODS WITH ARP BOLTS
- ARP HEAD STUD KIT
- HIGH VOLUME OIL PUMP
- BALANCE SHAFT ELIMINATOR AND ALL NEW TIMING COMPONENTS
- RACE PORTED NEW NON-JET VALVE HEAD CASTING
- MECHANICAL VALVE ADJUSTER ROCKERS
- STAINLESS STEEL VALVES
- DUAL RACING VALVE SPRINGS
- STAGE-3 CAMSHAFT
- BALANCED AND BLUEPRINTED ROTATING ASSEMBLY
- LIGHTENED STOCK FLYWHEEL
- PRO-GRIP RACING CLUTCH

TURBO AND FUEL SYSTEM: SEE CATALOG FOR ITEM PRICING.

- T3/T4 HYBRID CONVERSION "SUPER-H" .82 with Stage-3 TURBINE.
- HKS OR ELECTRONIC VALVE CONTROLLER
- 3" EXHAUST WITH 3" WALKER ULTRA FLO
- 4 INJECTOR INTAKE MANIFOLD WITH 60mm THROTTLE BODY
- ELECTROMOTIVE TEC-II MANAGEMENT SYSTEM
- 550 CC INJECTORS + 2 more Staged 440cc injectors
- BOSCH RACING FUEL PUMP
- CARTECH BOOST REFERENCED RISING RATE REGULATOR
- TEP INTERCOOLER UPGRADE
- 2.25" INLET AND 2.5" OUTLET PLUMBING

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Starion / Conquest Complete Engines

Yes we can supply complete ready to run engines with Turbo system, Intake system, F.I. systems, Etc. We can build a powerplant to your specs and have it arrive in a big crate right to your door. From Stock to 400+ HP.

Contact us with your specific needs and we can get you pricing.



The Engine Pictured Is A Complete

- Race Prepared Stage-3 Drag race engine.
- T3 / T4 System with High Heat coated Turbine Housing.
- 4 Injector conversion with Electromotive TEC-II.
- Lightened Stock 240mm Flywheel
- Pro-Grip Race Clutch

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-

Turbocharger Upgrades

We offer a variety of Turbo upgrades for the StarQuest. We always get asked..."What is the best Turbo to go with ?" The answer depends on what you want out of the car when you are done. Here are the Turbo upgrades we offer and their features. Be sure and be honest about what you want from the car when making the Turbo choice and you will not be disappointed. The Turbos listed here will perform as stated so if you really know what you want from the car you will be happy. We do not rebuild Stock Starion Turbos. It is a waste of time and the failure rate is too high. It is a fine thing to do sell the car or just to patch it up for a short time, but it will fail again.

Any time a Turbo is replaced you need to replace the oil feed line with it. We offer stock replacement oil lines (\$18.95) as well as Steel Braided lines which are cleanable and re-usable. They also flow more oil than the stock unit for longer life. (\$60.00)

New 14G Sport Turbo

\$795.00

This is the Turbo to use to replace your dead stock unit or if you want a fun street car that will never make more than about 250 HP. Requires no modifications to system and will not hurt your stock engine. This is a New Turbo, not rebuilt so no core is needed. Complete with Wastegate and Actuator. Just bolt it on.

The next 2 Turbos are upgrades to your stock unit and assume you have a rebuildable core to start with. We machine the Compressor housing, install a new high flow compressor wheel, Clip the Turbine wheel, completely rebuild the bearing section and dynamically balance the complete assembly for smooth high RPM operation. The balancing is something that many of the low budget Turbo builder do not do because they do not have the equipment for it. If your Turbo is junk we do offer these upgrades as a NEW Turbo as well.

Super-60 T3 Upgrade into stock Turbo

\$795.00

Garrett Super-60 T3 compressor wheel. A Kick-Ass bolt-on upgrade with great High RPM potential. Pulls good to 6200+ RPM while maintaining 15+ PSI boost. Good to about 320-330 HP.

16G Upgrade into stock Turbo.

\$795.00

A tried and true upgrade. Much more aggressive than the 14G. A good 320 HP Turbo. Does not have quite the high RPM capability of the Super-60 upgrade but still a good choice

New 16G or Super-60 Turbo

\$1050.00

Same as above but NEW. No core needed.

T3/T4 Turbo System:

\$1695.00

This is the one thing that will transform your Starion/Conquest into a serious contender on both the street and track. This is a totally complete and well engineered package that gives you amazing HP in a true Bolt-On package. The complete system. It includes... NEW T3 Exhaust Manifold. New T3/T4 Hybrid Turbocharger trimmed for your application. New Internal wastegate assembly. New Wastegate Actuator. New Mandrel Bent Downpipe. New 3" I.D. pipe from Mass Air to Turbo. New Steel braided oil feed line. New Water lines. New Oil drain back pipe. New

manifold and Turbo gaskets. Minimum 280hp on 88-89 and capable of over 400hp depending on trim and other mods.

Wastegate upgrade

\$150.00

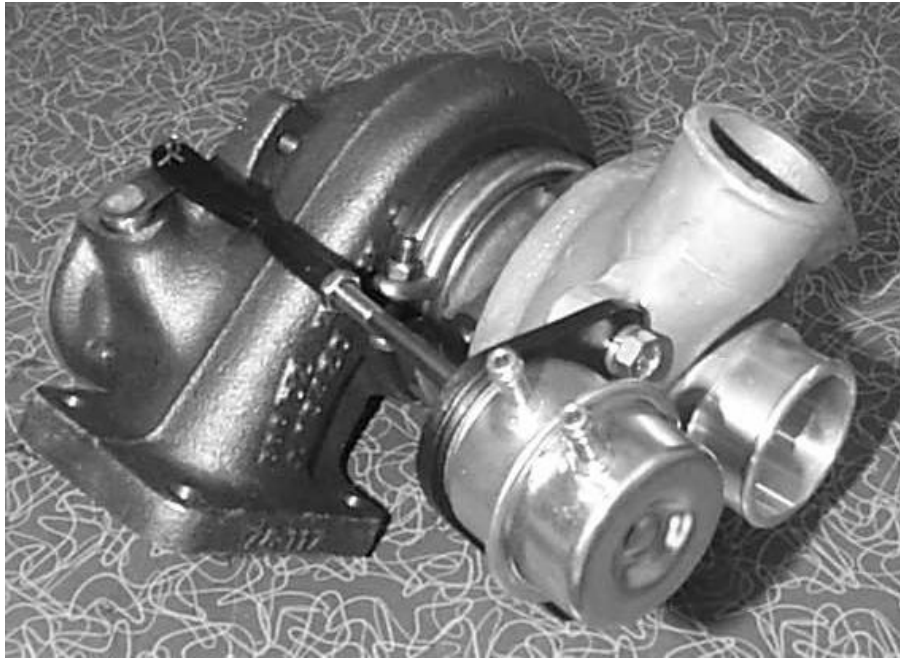
Dual port Wastegate actuator for stock, Super-60, or 16G turbo upgrade. Very precise control. Up to 14psi base boost without VBC. Bolt-On replacement for stock unit. Comes with mounting bracket. Same actuator we use on T3/T4 kit.



T3/T4 Conversion installed on 1988 Starion. Note how original it looks when installed properly.

This car has our Hard plumbing kit and OVC pipe with Racing Bypass Valve.

This particular car is stock with the exception of the T3/T4 kit, our Camshaft upgrade, Manual boost controller, and our big Bolt-On Intercooler. The car runs 13.40's @ 17 PSI boost on pump gas and street tires.



NEW Super-60 Upgrade with our Replacement Dual Port Wastegate Actuator. Ready to bolt-on. Capable of 320+ HP but still completely safe to be run on a stock engine at lower boost levels. The 16G version looks identical with the exception of the compressor wheel. Very stealthy Turbos for street use. Someone can look under your hood and never know they are about to get smoked.

TOP-END PERFORMANCE

"Performance Engines and Suspension components for Street and Track"

A division of T.E.P. Inc.

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- e-mail: [topend @ racetep.com](mailto:topend@racetep.com) Web: [http:// www.topendperf.com](http://www.topendperf.com)

Compressor Bypass Valves

The Compressor Bypass (or Blow-Off) Valve seems to be the most misunderstood part in a Turbo system. Everyone wants one. Almost everyone buys one. And almost no one understands what it does or how it works.

We sell an awful lot of Bypass valves every month to Starion and other car owners and about 75% of those people call not understanding how to make it work or claiming it does not work. We always get them fixed up but it can be frustrating. Here is a breif lesson in Bypass valves. Once you understand how simple it is and what it does you will never have a problem again.

The object of a Bypass valve is to relieve the excessive boost pressure that builds up between the Turbo and Throttle body when you let off the gas to shift or decelerate. It really was not designed as a noisemaker although many people

think that is all it is for. We do agree that it sounds pretty cool when it blows off, but that is a by-product of its function, not the design. If you are running 15psi boost and slam the throttle shut the boost pressure spikes up and tries to drive the compressor wheel backwards into the Turbo. This does 3 things...

First...it stalls the Turbo so that when you open the throttle back up it has to spool up all over again causing lag and hesitation.

Second...It puts a terrible load on the thrust bearing of the Turbo which can cause premature wear and failure.

Third...It weakens all your soft connections in the intercooler plumbing from excessive expansion and contraction.

It is a very simple device. it has a Diaphragm and a Valve (Much like an engine valve) When the Valve is shut the boost stays in the system and when it is open you get the Whoosh sound and the boost blows off. This is all done with a Single Vacuum and Boost connection. When the engine is under boost the valve is pressed shut by its own spring and the force of the boost pressure on it. This insures no boost leaks. When the throttle is shut and the engine goes from pressure to vacuum the valve is LIFTED off its seat and the excess pressure vents to the Atmosphere (or possibly back into the intake tract) depending on your particular installation. It is critical that you have a good connection to the bypass valve. it has strong vacuum demands to operate. You must be hooked up to a source that is below the throttle plate when it is closed. This will insure PRESSURE under boost conditions and VACUUM under closed or part throttle conditions. To insure you have a good source start the engine and put your finger over the connection you want to use. Make sure that it sucks good against your finger at idle then stops sucking when you open the throttle.(or hook up a vacuum gauge to it and make sure it makes at least 18-25 inches of vacuum when you open the throttle and snap it back shut again.)

On an Airflow Meter or Mass Air Sensor equipped car it is critical that the bypass valve be closed at idle. If it hangs open under idle conditions it will cause a few problems like stalling when you come back to idle. poor idle quality, and poor part throttle driveability. The HKS Racing bypass valve that we use has an adjustment to correct this type of problem. Some of the non-adjustable valves or those with very light springs will (if they stay open at idle)have to have the discharge routed back into the plumbing between the Turbo and the Airflow Meter or Mass Air sensor. If you are uncertain if the valve is staying open at idle just block off the discharge with your hand and see if the idle changes. if it has no effect you are probably safe.

Starion Bypass Hookup: To answer the question we get asked 10 times a day. You hook up the Bypass valve to the 3rd port back on the throttle body. If you are standing at the drivers side fender looking at the throttle body. there are 3 small vacuum ports in a row. You want to use the one closest to the firewall. To insure you have a good source start the car and put your finger over this hose. It should have good strong vacuum going to it. If you do not feel good suction on the hose at idle the bypass valve will never work properly.

This is also the same port you use for an aftermarket boost gauge and Rising rate fuel regulator.

When hooking up the HKS racing bypass valve you only use the vacuum port that is next to the valve discharge. The one coming off the base at an angle is not used. Leave it open. DO NOT CAP IT OFF.



85-89 Starion Conquest Over the Valve Cover pipe with Racing Bypass valve. \$299.00



85-89 Starion Bypass Valve with Tee Pipe. \$229.00

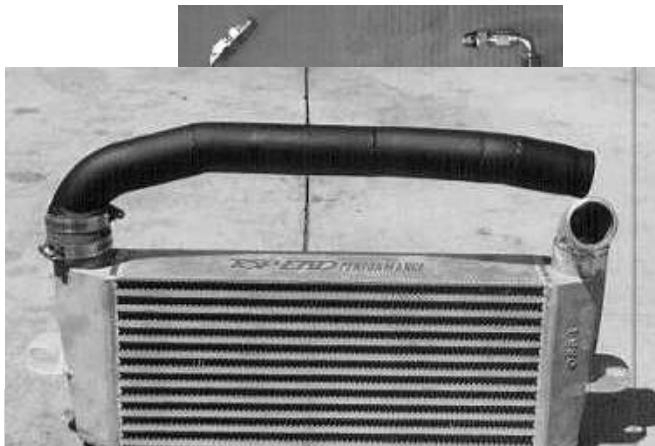
Note the location of the vacuum hose. This is the connection that is used.

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-



Steel Braided Oil Feed Line.
Fits all models of Mits. Turbos
12G,14G,16G,20G.
Reusable. Flexible. Higher Oil Flow

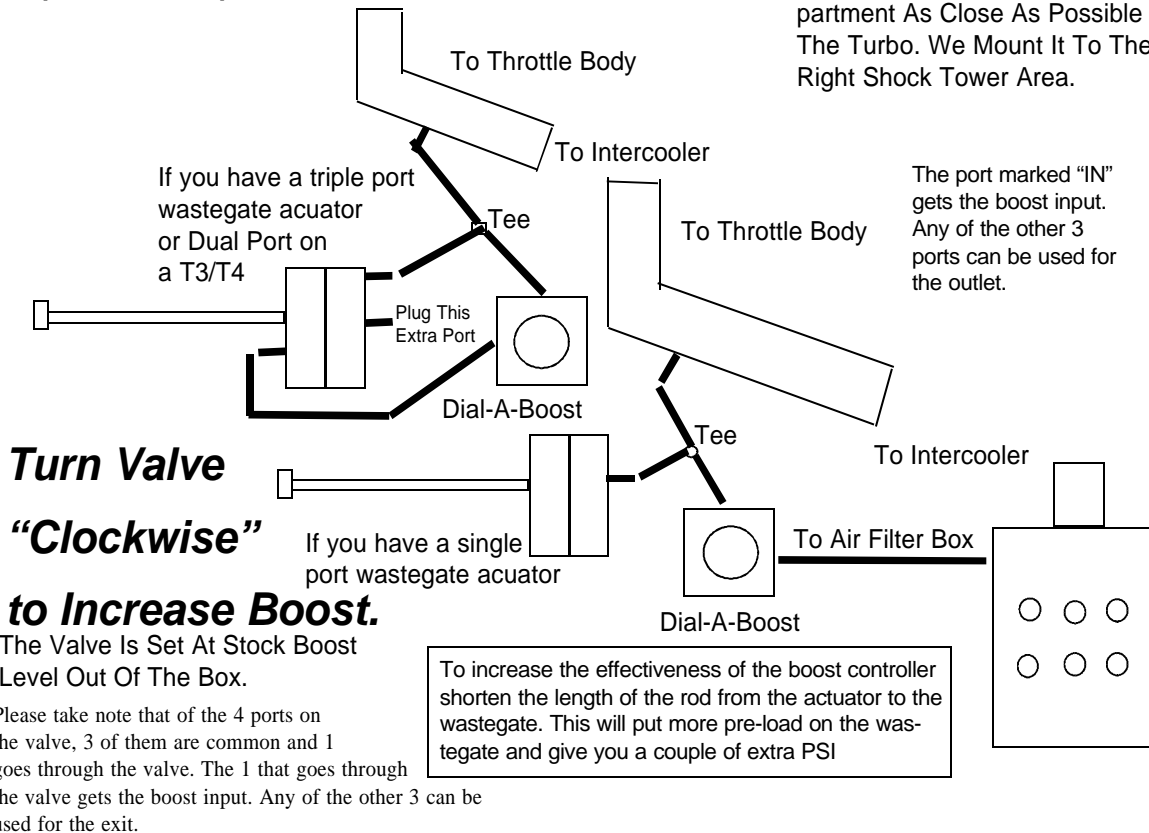
\$60.00



Dial-A-Boost Installation Instructions

Check out our web page for more info
<http://www.racetep.com/dboost.html>

Mount The Valve In The Engine Compartment As Close As Possible To The Turbo. We Mount It To The Right Shock Tower Area.



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- e-mail: topend @ racetep.com Web: <http:// www.topendperf.com>

Tips Tricks and Other Things You Want To Know.

If you are going to build a Starion or Conquest there are a couple of things we would like to say first. Congratulations on not having a Honda or Acura. This shows originality and initiative. Regardless of what Turbo Magazine says about these cars it is a great platform to go fast with. It is not cheap to make a 12 or low 13 sec. Starion or Conquest but it is not all that hard either. You are starting with a very strong engine, transmission and rear end. The good part is that these cars can be had for a very reasonable price and deliver lots for the money. A 4 wheel Independent suspension, 4 wheel disc brake ABS equipped REAR WHEEL DRIVE car with all of the standard amenities is not an easy thing to come by for \$2500-\$5500 which is the typical range for a nice car.

If you are starting with an 86-87 car you have a few problems to deal with first....

The 86 uses a simultaneous fire injector system with 2 small 550cc injectors, unlike the 87-89 cars which use a progressive fire system with (1) 1100cc and (1) 580cc injector. The 86 runs out of fuel very quickly and has a boost cut at about 10-11 psi. To make good HP from an 86 you need to eliminate or raise the boost cut (Fuel Cut Defencer \$169.00) then add a set of Auxilliary Fuel Injectors (See AIC kit page) along with a bigger pump (See fuel components section) to handle the volume demands. The other option is to just convert to a programmable management 4 injector conversion and be done with it.

The 87 uses the proper progressive injector system but suffers from terrible engine control. We recommend getting an 88-89 ECU and plugging that in. It will raise the boost cut to 18+ psi and give you the capability of producing about 320 HP while maintaining the stock management.

If you have a good running 88-89 with a strong engine you are in luck. You can just start bolting fun stuff on right away.

If you want a nice daily driver that can run in the 13's please look at our T3/T4 page, Stage-1 kit or for the ultimate bolt-on package the SCU-1 package. It does what most people want with minimal effort and a fixed expense. This is the basis for any engine that will make in the 400hp range but works equally well on a totally stock system.

The engine is very strong but for boost levels over 12-13 psi we highly recommend using forged pistons and head studs. This gives you a huge safety margin with detonation, bad gas, etc. Do a compression test on you engine and make sure that it has at least 115-120 psi per cylinder before considering serious HP upgrades. If the car has a tendency to run hot be sure and fix that first. If it runs hot stock it will get much worse the more you modify it.

Cylinder Heads and Head Gaskets:

Okay, we all know that Starions are famous for cracking cylinder heads. It is a 50/50 problem between bad design by Mitsubishi and poor maintenance and abuse on the part of most owners. Since it is more fun to blame the manufacturer we will discuss that first. The jet valves do not belong in a Turbo engine. More specifically the steel jet valve shrouds that protrude into the combustion chamber do not belong there. Unfortunately there is no way to have the jet valves

without the shrouds and steel is the only thing that will live in the chamber. The steel shroud gets glowing hot and transfers a huge amount of heat right at the seat area. The cooling in the head cannot get rid of this heat fast enough and the head cracks right across the seats or from the exhaust valve to the water port. The answer is to not have the jet valves there at all. We can eliminate them from the head by welding up both sides of the port and blending the chamber. We only feel this is worth doing on a non-cracked head that has quite a bit of money invested in porting. The new non-jet valve head castings we offer cost less than doing a crack repair and jet valve removal with new valve guides.

The other problem with cracking the heads is the cooling system. The heat generated in a Turbo car dictates that the cooling system be working properly. If the radiator is even 10% clogged your car will run hot. There is no reason for a Starion or Conquest to run hot under normal driving conditions even on the hottest summer day with the A/C on. Running the car hard on boost up a hill on a hot day is a different story. If you are inclined to such silly things than we suggest you upgrade to a 3 row high efficiency radiator or an Aluminum unit.

Make sure your cooling fans Work properly. Almost every car we get in has at least 1 of the fans not working properly. The first time you get stuck in traffic with the main fan not operational the temp will be right up in the red. One or 2 trips into the red and a head gasket or the whole head will go.

Head hardware is another important area. The stock head bolts are a torque to yield style bolt, which means they have to be replaced every time they are removed. If you do not replace them the head will lift from the block and the head gasket will blow. We have had customers replace a head gasket every 3-4 weeks and never understand what the problem is. We use ARP head studs on all our engines. A stud with a nut and washer distributes the load evenly over the head surface instead of a bolt pulling the threads in the block and distorting the block surface. The studs will also allow a higher torque which means better gasket crush and a more rigid assembly. A non-jet valve head with studs will be very unlikely to ever crack or blow a head gasket.

Blocks:

There is nothing wrong with the 2.6 bottom end. It is bulletproof and will survive tons of abuse with no crank or rod failures. The stock pistons are a different story. They suck. Anyone considering anything bigger than a 14G sport turbo and more than 15 psi boost had best start thinking about Forged pistons. It is only a matter of time before the stock ring lands shatter and your car turns into a smoke machine. The other misconception is that the 2.6 engine will not rev. That is total B.S. With a proper size Turbo and good breathing the G54B will easily turn 7000+ RPM.

The balance shafts are a particularly weak area. We eliminate them in all the engines we build. It is very important to have the complete rotating assembly balanced after removing them. If you don't it will vibrate. The other benefits of eliminating them is an almost 18 HP gain and much higher oil pressure and volume to the more important parts of the engine. That is a bunch of stuff spinning around in there with a gaggle of chains, tensioners, guides, etc. to keep it all in place. The stock con rods are excellent once they have been race prepared. We have never broken one under even the most strenuous conditions. Same goes for the crankshaft. Very strong and reliable.

Flywheels:

The flywheel is without a doubt the second most ridiculous part on the car (next to the size of the stock turbo) 34-36 lbs stock. We understand the idea was to make the long stroke engine smooth and have great inertia once it was moving, but come on. Geeez. 30+ lbs is just silly. By the same token you cannot install a 10 lb aluminum flywheel in the car and have it work worth a damn. When you go too lightweight there is not enough inertia and the engine will not rev nor will it be

smooth at cruise speeds. It is sorta like the 3 little bears and the one that is just right is a lightened stock unit, We can get the 240mm 88-89 flywheels down to about 21 lbs and the 86-87 225mm units to about 19-20 lbs. This gives just the right amount of inertia. The car will rev up fast yet can maintain the RPM and have a nice part throttle cruise. We prefer to use the 88-89 240mm flywheel and clutch. The extra diameter on the clutch disc make a big difference in holding power and the late style pressure plate is just better.

Upgrading the Starion / Conquest:

The stock 2 injector throttle body injection is poorly designed but it is what you have to work with unless you want to jump in and go to a complete new F.I. system. We have been successful in working with the stock system in applications up to about 320 hp although the driveability is not all it could be and they tend to be a bit inconsistent and cranky. The stock system is notoriously unreliable and difficult to troubleshoot and even more expensive to repair. DO NOT attempt any upgrades to your car if the injection system is not working properly. You will lean out or detonate and cause yourself much more expensive problems. Make the car run good before you try to make it go fast.

If you are having a poor idle problem , a bucking under acceleration, or the car revs to about 3000 RPM and falls on its face, the first thing to do is replace the injector clips. A bad Injector connection will mess up the entire system. Clean the injector terminals with a toothbrush (Not the one you use every day) and some contact cleaner, Solder the leads to the new injector clips and you may just cure a bunch of problems in the car.

The other problem most people encounter when working on or troubleshooting their F.I. system is establishing fuel pressure and volume. It seems no one has the tools and most repair shops don't want to deal with these cars. You need to know if the car is rich or lean before you can figure out what to do to fix or upgrade it. To this end we offer a couple of good diagnostic and tuning tools. You also need to establish fuel volume, this will tell you if the fuel pump, pickup or fuel filter are restricting the amount of fuel to your engine. You need at least 40 gallons per hour @ 45 psi to run under boost. This is easily measured by taking a container of known size (like a 1 gallon plastic bottle) and running the fuel into it for 1 minute and multiplying by 60 for a 1 hour flow rate. A 150-200 GPH rating is even better, this is the reason for upgraded pumps and additional pumps. Fuel pressure plays a big part in tuning the system. If you cannot change the length of time the injector opens (as with the stock system) then raising the fuel pressure will let more fuel in during that time with the added advantage of a better spray pattern and better atomization. Rising rate boost referenced regulators are the best way to accomplish this since the stock regulator does a fine job of running the car at low speeds and off boost. We use an additional rising rate regulator inline with the stock regulator to increase pressure in a linear fashion from 5 psi boost to 18 psi. The amount of pressure varies with the output of your pump or pumps. Upgraded fuel pumps are a great safety item and will assure you of having enough fuel available at all times. A must if you are going to run a Nitrous system or more than stock boost. Not all cars need the extra fuel depending on the amount of power they are making and other modifications that are done. The easiest way to find out if you need a regulator or to install a Halmeter AF/30 Air Fuel Ratio Monitor. The highest quality, most accurate, and affordable onboard rich/lean meter available. Simple 3 wire installation. Hooks directly to your stock O2 sensor wire. Will quickly tell you if you are leaning out and about to make a big mess inside your engine. Also very handy for tuning adjustable pressure regulators and finding the boost limits of your fuel system. We recommend having this onboard at all times to alert you to any potential problems. This should be installed before any additional pumps or regulators are purchased to make sure that you need them. If you are not running lean then putting more fuel will make the car sluggish and unresponsive, not to mention give you horrible fuel economy.

Exhaust Systems:

You do not need a 3" exhaust on a street Starion. You almost don't need it on a Race Starion. I know, everyone says it will make more power in a turbo car with bigger pipe. Sure, we'll agree with that but you do not drive the car on boost at 18 psi all the time. Most cars don't even flow enough to take advantage of a 3" pipe at 20 psi and 7500 rpm. What happens when you put too large a diameter pipe on your car is that the off boost performance suffers terribly. A turbo car has to make boost before it make power. You also have to drive your car normally most of the time. This concept does not apply to a dedicated track car that just stays on boost all the time so don't call and yell at me about it.

Too large a diameter pipe does not have any exhaust velocity or extractor effect until very high rpm. Removing all the backpressure from a system will allow the turbo to breathe more efficiently once it is on boost, but it will generally delay the turbo from coming on boost. The Catch-22 here is that the engine off boost needs a certain amount of backpressure to develop the exhaust flow that will allow the Turbo to spool-up. You need to compromise with an exhaust size that will allow the car to run correctly over its entire RPM range. In the case of a street and strip Starion that size is 2.5" with or without a Cat. If you have a huge Turbo and just want to make monster boost and HP and don't give a crap about driveability or performance below 4000 rpm, hey, go for it. 3" pipe is the answer. In an unlimited situation where max power and flow is the consideration and driveability is no issue than a bigger free flow system is the answer. I just guarantee you that 99% of the cars out there do not fit that category. You can find plenty of Starion owners that put a 3" system on their car and will admit that it went slower in the ¼ mile and was much more sluggish around town.

Suspension and Brakes:

One of the strongest points of a Starion / Conquest is the handling and braking. For street and Auto-X use there is not much that needs to be done to make the car work perfectly. Do not try to lower the car any more than the springs allow. **Do Not Cut The Springs.** It does not matter if you are using our springs, or Eibachs, or whatever. If you cut them the car will bottom out and have no suspension travel. It will be uncomfortable to drive and it will not handle any better. You'll also wipe out your front spoiler instantly. We have won many Auto-X events with our Starions with nothing more than a set of our lowering coils, bolt on sway bars, and a set of Tokico shocks and struts. The braking system is also great. The stock pads are not very good and should always be upgraded to Metal Masters or Carbon Kevlars. Steel Braided brake lines make a great improvement in pedal feel and are a good safety item. If your plan is to road race the car you have to get a bit more extreme. We have all the parts you need to make a competitive Road Race Starion / Conquest.

What Should I Do First ?

This is a very tough thing to tell people. The first thing to do is make sure the car runs perfect. Do not make any mods to the car until it runs good. Fix whatever needs to be fixed to make it right. If the car is a 1986 either upgrade the ECU or get an FCD. If it is a 1987 get the ECU upgraded or install an 88-89 ECU. If the car is an 88-89 and it runs good just jump right in.

The second thing is to decide exactly what you want to end up with when you are done. You have to be honest about what you are really going to do with the car.

- What kind of HP are you looking for ?
- Do you want to be able to run pump gas ?
- Will it be raced or just be a street car ?
- What kind of racing will you do ?

Drag Race, Road Race, Auto-X ?

The third thing is. What condition is the engine in and what do you want to do to it ? Obviously you cannot make 300 HP with an old tired motor that is on its last legs. An engine in good stock condition

- Does not over heat or use water.
- Does not use anymore than ½ Qt. of oil every 1000 miles.
- Has good oil pressure.
- Has at least 110 psi compression in every hole and no more than a 10% variation between cylinders.

If it has any engine problems you need to fix it before you go any further. A good running high mileage (About 100K miles) stock 2.6T is capable of about 250HP safely. A fresh stock engine can handle in the high 200's to 300 HP for very short periods of time on a reasonably cool day.

Once you have figured out what you want to achieve you should decide what Turbo you will use. Since many of your purchases are tied to the style of Turbo you should make that decision first so as to avoid buying things twice. Here is a list of choices and the **Max HP and Performance** you will most likely get depending on what other upgrades you make. This is based on the starting point of a 180 HP stock intercooled car running 10 PSI boost.

- Sport 14G up to 260 HP Mid 14's
Good every day driver. Long engine life. Fun car for the street
- Super-60 T3 up to 320 HP Low 14's High 13's
Still good every day. Needs engine internal beefed up. Good weekend drag racer
- T3/T4 System Minimum 300 to 380+ HP High 13's to Low 12's
Can be used on a stock engine with low (10-12) psi boost or be tweaked to make as much HP as you will ever develop reliably from this powerplant.

Okay, hopefully you are getting the idea. Make a plan and try and stick to it. Be realistic. Not everyone wants to make 400 HP and run race gas in their car everyday. Not everyone has a huge budget to spend either. Do what is within your means. If this is your only car and it cannot be down for repairs often then stick with very basic bolt-on items. If it is your second car and can be down for longer periods of time then your options open up a bit. If it is just your weekend toy then go for it.

Here is a list of the basic upgrades that can be done on a stock engine and keep it reliable. This will get you anywhere from a high 13 sec car to a low 14 sec. Car depending on Turbo choice and how good your engine is.

- 14G or Super-60 Turbocharger at 12-14 psi boost max
- High Flow Downpipe Kit
- 2.5" Exhaust system with high flow catalytic and 3" Ultra-Flo muffler
- Manual or electronic boost controller
- K&N Air filter with opened up air box
- Upgraded Fuel pump with Cartech Fuel Regulator
- High Flow Inlet Pipe with Racing Bypass Valve
- TEP Camshaft upgrade
- Enlarged throttle body with intake manifold mods.

The same thing can apply to the T3/T4 system but you can only reliably run 10-12 psi boost if the engine is old and stock.

If you have a stock 88-89 and know the engine is in great shape and you want a bolt on high to mid 13 sec car here is what you do.

- T3/T4 System
- 2.5" exhaust with no cats and 3" Ultra-Flo Muffler
- Manual or electronic boost controller
- K&N Air filter with opened up air box
- Upgraded Fuel pump with Cartech Fuel Regulator
- High Flow Inlet Pipe with Racing Bypass Valve
- TEP Camshaft upgrade
- Enlarged throttle body with intake manifold mods.

In general the way to approach upgrading your Starion is.....

- Make sure the engine is in good shape.
- If not, rebuild it to the most extreme level you think you might use in the future.
- Make sure the F.I. system is working properly
- If not fix it, or replace it with something better

Make it run right and reliable before doing anything else !

- Choose the turbo system that fits your needs
- Do the complete exhaust system
- Upgrade the Air filter and Air box
- Install a performance camshaft
- Add a Compressor Bypass valve to save your investment in a good Turbo
- Add the Upgraded Fuel Pump and Pressure Regulator to keep you from leaning out.
- Install a HALMETER to make sure you have the correct amount of fuel

Other bolt-on or non internal engine stuff that is safe to do and will enhance your performance is

- Intercooler plumbing kit
- Intercooler upgrade
- Enlarge the stock throttle body and open up the stock intake manifold
- Install High Flow Fuel Injectors or an AIC System

Once you get into the engine you can make some vast improvements. Between raising the static compression, Upgrading to Forged Pistons and good rings, losing the jet valves from the head, doing some porting work, Etc you can really crank some boost and take full advantage of a setup like the T3/T4.

The lists go on and on. You can spend as much as you want and do an unlimited number of mods. Because of this we always recommend you give us a call if you are going to do a big project all at once. We will always try and make sure that you get the most for your money and do not buy things that are not needed or will not make you happy. The best way for us to ensure that you are satisfied with your purchase is to make sure you buy the correct parts.

My Starion is Broke, What's the Matter with it ?

I contemplated not even trying to do this part of the catalog. This will be only the most commonly asked questions and the answers we give at least 2-3 times a day. Many of the answers

probably lie in the stuff you have hopefully already read. If you just skipped to this section please go back and read through the whole thing again.

Okay, did you really read it all ? Good. Now hopefully this helps you a bit more.

The first thing to do if you are going to own one of these cars is to pony up and buy the factory workshop manual. Yeah I know it's about \$80.00 but you will save that in mechanic bills and incorrect guesses as to what is wrong. Don't let the dealer tell you it is not available. They have to order them and it takes a week or so but they can get it.

It is also assumed that you can do basic maintenance on your car. Always start with fresh spark plugs, a new cap and rotor. Good spark plug wires. A good coil. Set your timing correctly. (10 degrees advanced at 900 rpm.) Do this first and you may solve all your problems. The little things will kick your butt every time. If you have not replaced the Injector clips, do it. A bad connection will cause untold problems in a Starion. Change your fuel filter. You know you haven't done it in forever. It really can make a difference.

Idle Problems:

A perfect running Starion still does not have a perfect idle. That is the fault of the demented Mitsubishi engineer who chose a 2 injector wet manifold system. However, it should idle pretty good at about 800-900 rpm. If you installed a camshaft (Even one of ours) it is likely that on an older engine it will affect the idle a bit. More so when it is first started in the morning. This still should be an acceptable idle. If it is not, try the following things.

Pull the spark plugs and inspect them. Then change them. NGK BP7ES gapped at .032
Do a compression test.

If the compression is below 100 psi it will never idle right and you have major engine problems.
If the compression is off by 15 or more psi per hole then it will never idle right. You have engine problems.

Inspect all your vacuum hoses and replace any that are broken or cracked. Check the boot between the Turbo and the mass air sensor. These are prone to cracking right at the Turbo inlet. Any leak here will make your car run like total crap and it will never idle right (Hunt up and down, never idle the same way twice) If it is bad replace it. No, put the duct tape away. Go buy a new one.

If this checks out okay then restart the engine and let it warm up. Get a can of Starting Fluid (Ether) and spray around the throttle body, injectors, manifold etc. Any change in idle will indicate a vacuum leak. Fix it. If there are no leaks, with the car idling spray a small amount of Starting fluid into the air filter. If the idle perks up for a second then dies off your car is lean. Most likely a bad fuel pump and/or a partially clogged primary fuel injector. If the injectors are leaking it does not mean they are malfunctioning. You should still replace or repair them, but it does not mean that is what is wrong with your car. Leaky injectors very rarely have any affect on the way the car runs (Except when it catches on fire and becomes a lump of charcoal because of it.)

My car cranks but will not start:

I will assume you can check for spark and that the fuel pump is running.

The likely answer is a bad fuel injector or a bad connection on the injector clip.

My car goes to about 2000-300 RPM and falls on its face:

Bad secondary injector on 87-89 or dead TPS

My car makes good power at up to about 3-4 psi boost but then it stops pulling.

My car won't make any power going up hills but idles good and runs fine on a flat road

Bad or weak fuel pump

Clogged fuel filter

My car bucks and surges under acceleration and won't rev up

Bad or clogged injectors

Bad injector clips

Weak / Bad fuel pump

My car blows white smoke for a few minutes when I first start it up in the morning .

My car puffs a big cloud of white smoke every time I start it then it gets better.

Bad Turbo seals

My car blows out white smoke whenever I accelerate hard.

Bad Piston Rings / pistons

And / or Blown Turbo

My car runs hot on the freeway under load but is fine at low speeds

Partially clogged radiator. Recommend our 3 row Radiator conversion. (\$299.00)

Too much spark advance

Lean fuel mixture under load

My car runs cool on the freeway but gets hot in traffic

Fans not working properly. Recommend our Cooling Fan Relay Kit. (\$45.00)

My car gets hot as soon as the A/C is turned on.

Front cooling fan not turning on. Recommend our Cooling Fan Relay Kit. (\$45.00)

A/C condenser in front of radiator clogged with dirt and debris.

My car uses water but runs good otherwise

Slight crack in head. It will only get worse

My car uses lots of water and runs crappy

Blown or leaking head gasket

Huge crack that is drowning a cylinder

Other Questions We Get Asked All The Time

How much boost is safe to run on my stock engine ?

That depends on many factors. Generally with a Stock Turbo 15-16 wont hurt anything. A 14G Sport you can safely run 12-14 psi for along time without any damage. A T3/T4 maybe only 10-12. It is not the boost pressure that is the problem. It is the volume of air at that boost pressure. 20 psi with a T2 or a TD04 will not do any damage because it is not making any HP in that displacement

engine. 20 PSI with a T3/T4 or a TD06 will shatter the stock pistons and eject the cylinder head in a stock engine.

What ¼ mile times will I run after doing the modifications ?

Hard to tell. The times we have run with our Starions were done by good drag racers. We have built cars for a customer that ran in the 13's with a good driver then they get in it and run a 14 or 15. You have to be a good drag racer to turn good consistent times. It takes practice. Just dumping the clutch and power shifting is not the answer. There are formulas for power to weight and ¼ mile times that are very accurate but they all assume a good driver with excellent traction. A 3400 pound car (Average Starion Weight with a driver and all the usual stuff you have in your car) take a pretty good chunk of HP to get in the 13's unless you have real good traction. Getting a Starion to hook up is very difficult. They were designed as a good handling Sport GT car. Not a Drag Race car. The more power you make the harder it is to hook them up.

We hear B.S. stories all the time from people claiming Low 12 and High 11 sec times with 14G Turbos and pump gas. It can't happen. It will take high 300 HP output and an awesome launch to get a full body and interior Starion into the 12's. Not many of them are making this kind of power unless they have a 100 HP shot of Nitrous in it. We are not fans of Nitrous. It is kind of like cheating to us. All our power figures are based on engines without Nitrous

My car is an Automatic. Do I suck ?

No. Automatic Starions are always faster in the ¼ mile and we recommend them. They are not as fun to drive but without having to shift and lose boost between shifts they are always faster. You will have less traction problems and better reaction time. By brake standing the car you can be on boost as you leave. It is also to easier to drive while holding your coffee in the morning.

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TOP-END PERFORMANCE

"Performance Engines and Suspension components for Street and Track"

A division of T.E.P. Inc.

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- e-mail: topend@racetep.com Web: <http://www.topendperf.com>

1999 Starion / Conquest Parts and Price Listing

These prices are current as of 08-99. Please be sure and check current prices when ordering. Prices can change without notice and we don't want you to get surprised. Those of you that have been dealing with us for a few years know we have tried to keep our pricing consistent and some items have even come down in price due to higher volume or ease of manufacture.

This is all the stuff that is not covered in the preceding pages. (And some of it that is.) If there is something you are looking for that you do not see please contact us for a price and availability. We are constantly adding to the line.

Stock Fuel Injection System Upgrade Components:

The stock 2 injector throttle body injection is poorly designed but it is what you have to work with unless you want to jump in and go to a complete new F.I. system. We have been successful in working with the stock system in applications up to about 300 hp although the driveability is not all it could be. The stock system is notoriously unreliable and difficult to troubleshoot and even more expensive to repair. DO NOT attempt any upgrades to your car if the injection system is not working properly. You will lean out or detonate and cause yourself much more expensive problems. Make the car run good before you try to make it go fast.

The first problem most people encounter when working on or troubleshooting their F.I. system is establishing fuel pressure and volume. It seems no one has the tools and most repair shops don't want to deal with these cars. You need to know if the car is rich or lean before you can figure out what to do to fix or upgrade it. To this end we offer a couple of good diagnostic and tuning tools. You also need to establish fuel volume, this will tell you if the fuel pump, pickup or fuel filter are restricting the amount of fuel to your engine. You need at least 25 gallons per hour @ 45 psi to run under boost. This is easily measured by taking a container of known size (like a 1 gallon plastic bottle) and running the fuel into it for 1 minute and multiplying by 60 for a 1 hour flow rate. A 90-150 GPH rating is even better, this is the reason for upgraded pumps. Fuel pressure plays a big part in tuning the system. If you cannot change the length of time the injector opens (as with the stock system) then raising the fuel pressure will let more fuel in during that time with the added advantage of a better spray pattern and better atomization. Rising rate boost referenced regulators are the best way to accomplish this since the stock regulator does a fine job of running the car at low speeds and off boost. We use an additional rising rate regulator inline with the stock regulator to increase pressure in a linear fashion from 5 psi boost to 18 psi. The amount of pressure varies with the output of your pump or pumps. Replacement BOSCH High volume and High pressure fuel pumps are a great safety item and will assure you of having enough fuel available at all times. A must if you are going to run a Nitrous system and the only way to go to replace a bad stock pump.

Halimeter AF/30

\$129.00

The highest quality, most accurate, and affordable onboard rich/lean meter available. Simple 3 wire installation. Hooks directly to your stock O2 sensor wire. Will quickly tell you if you are leaning out and about to make a big mess inside your engine. Also very handy for tuning adjustable pressure regulators and finding the boost limits of your fuel system. We recommend having this onboard at all times to alert you to any potential problems. This should be installed before any additional pumps or regulators are purchased to make sure that you need them. If you

are not running lean then putting more fuel will make the car sluggish and unresponsive, not to mention give you horrible fuel economy.

- Fuel Pressure Test Gauge \$59.95
0-100 psi gauge for testing fuel pressure while idling or driving. Large 4" easy read dial, 3' of high pressure hose, and a Tee fitting for hooking into your high pressure line.
- Bosch Replacement 350 HP fuel pump. \$199.00
A stand alone replacement for the stock pump. Good for systems up to 350 HP. A direct replacement for the stock pump.
- Bosch Racing 500 HP Fuel pump. \$239.00
A stand alone replacement pump for systems up to 500 HP or any 4 injector or AIC system. This is the pump that comes with our 4 injector conversions and AIC kits.
- Rising Rate Inline fuel pressure regulator. \$219.00
Same baseline as the stock regulator so it will no affect your off boost and low boost driveability. A small compact easy to install unit that does exactly what the bigger fancier regulators do at about ½ the price. Also makes a great stand alone regulator if you want to eliminate the stock one or are going to a stand alone management system.
- Bosch mechanical adjustable regulator. \$59.00
A handy inline mechanical regulator that will enable you to raise your baseline fuel pressure incrementally to the limit of the pumps output. An easy way to cure off boost lean spots. Can be used with any rising rate regulator.
- Fuel Injectors
- 87-89 Primary or Secondary \$335.00 each
85-86 \$319.00 each
Stock Factory replacement fuel injectors. They come with new seals and new injector connectors.
- Clean and flow stock injectors (per pair, all years) \$75.00
Cheaper than buying new ones and usually successful
- Fuel Injector replacement connectors \$10.00 ea
These little connectors are the source of so many problems in a StarQuest it should be the very first thing you replace when you buy one or are having any driveability problems. This is the plastic connector with the electrical terminals and a 6" pigtail of wire. Ours are the quick release style so you do not need to pick the little "U" clips to remove them. Just push and release. Solder new wires onto your harness and off you go. Be sure and THOROUGHLY CLEAN your injector terminals with a small file or piece of sandpaper to insure good contact.
- K&N Air filter for stock air box \$39.50
This is the best way to do this. K&N element in the stock air box. Drill a bunch or ¾" to 1" holes in the airbox on the side away from the turbo and the face. Keeps intake noise down and admits quite a bit more air. Cheap, Easy , and the filter is washable
- Fuel Injector Seal kit \$16.95
Throttle body Seal kit (Includes Injector seal kit.) \$65.00
Mass Air Sensor Mods:
This is something to try. Remove the cardboard and the honeycomb from the mass air sensor. The cardboard is easy but the honeycomb requires a bit more finesse. You want to carefully cut the honeycomb out so that if your car does not respond favorably you can epoxy it back in. Although it flows quite a bit more air but on some cars it will cause a poor idle condition or after a hard boost run it will surge when it comes back to idle. If these problems annoy you too much put it back to stock. You will notice a power gain and if the idle problem is something that you can live with, then it is a free bit of HP.

Turbochargers, Intercoolers, Boost Controls, Compressor Bypass valves:

We offer a variety of Turbo upgrades for the StarQuest. We always get asked..."What is the best Turbo to go with ?" That answer depends on what you want out of the car when you are done. Here are the Turbo upgrades we offer and their features. Be sure and be honest about what you want from the car when making the Turbo choice and you will not be disappointed. The Turbos listed here will perform as stated so if you really know what you want from the car you will be happy. We do not rebuild Stock Starion Turbos. It is a waste of time and the failure rate is too high. It is a fine thing to do to sell the car or just to patch it up for a short time, but it will fail again.

Any time a Turbo is replaced you need to replace the oil feed line with it. We offer stock replacement oil lines (\$18.95) as well as Steel Braided lines which are cleanable and re-usable. They also flow more oil than the stock unit for longer life. (\$65.00)

New 14G Sport Turbo \$795.00

This is the Turbo to use to replace your dead stock unit or if you want a fun street car that will never make more than about 250 HP. Requires no modifications to system and will not hurt your stock engine. This is a New Turbo, not a rebuilt so no core is needed. Complete with Wastegate and Actuator. Just bolt it on.

The next 2 Turbos are upgrades to your stock unit and assume you have a rebuildable core to start with. We machine the Compressor housing, install a new high flow compressor wheel, Clip the Turbine wheel, completely rebuild the bearing section and dynamically balance the complete assembly for smooth high RPM operation. The balancing is something that many of the low budget Turbo builder do not do because they do not have the equipment for it. If your Turbo is junk we do offer these upgrades as a NEW Turbo as well.

Super-60 T3 Upgrade into stock Turbo \$795.00

Garrett Super-60 T3 compressor wheel. A Kick-Ass bolt-on upgrade with great High RPM potential. Pulls good to 6200+ RPM while maintaining 15+ PSI boost. Good to about 320-330 HP.

16G Upgrade into stock Turbo. \$795.00

A tried and true upgrade. Much more aggressive than the 14G. A good 320 HP Turbo. Does not have quite the high RPM capability of the Super-60 upgrade but still a good choice

New 16G or Super-60 Turbo \$1050.00

Same as above but NEW. No core needed.

T3/T4 Hybrid Turbo conversion package \$1695.00

The Ultimate Turbo for the Starion/Conquest. Nothing else compares. Fast spool. Amazing RPM capability. You thought your Starion engine did not rev up because it is a long stroke truck engine. It is really because the tiny Turbo on it runs out of steam at 5000 rpm. Bolt a T3/T4 system onto your stock 88-89 and what the engine scream to 7000 still making power. Of course you should have a good engine before doing this. Once it is uncorked and running freely the 2.6T is fully capable of 7500 RPM. That is how you get the good ¼ mile times. With the standard rear end gear ratios you need to be able to rev to at least 7000 RPM in the first 3 gears to run in the mid 13's or better.

Turbocharger with internal wastegate assembly. New exhaust manifold

Downpipe with O2 sensor. Inlet pipe from Turbo to Mass Air Sensor.

S/S Oil feed line. Water line kit. Oil drainback pipe. All needed hardware and gaskets.

Wastegate upgrade \$150.00

Dual port Wastegate actuator for stock, Super-60, or 16G turbo upgrade. Very precise control. Up to 14psi baseline boost without VBC. Bolt-On replacement for stock unit. Comes with mounting bracket. Same actuator we use on the T3/T4 kit.

Stage-1 Kit:	\$2250.00
T3/T4 Conversion, TEP Camshaft upgrade, Halmeter AF/30 Air fuel ratio monitor Dial-A-Boost controller. Over-the-Valve-Cover Pipe with HKS Adjustable Racing Compressor Bypass Valve.	
Ceramic Ball Bearing upgrade for T3/T4 Turbo Package	\$500.00
The Ultimate in long life and fast spool up. Nothing else like it.	
T3/T4 Turbo Only	\$650.00
Ceramic Ball Bearing upgrade for T3/T4 Turbo only	\$525.00
T3/T4 Turbo with internal wastegate and actuator standard bearing	\$950.00
T3/T4 Turbo with internal wastegate and actuator ceramic ball bearing	\$1395.00
Turbonetics Deltagate External Wastergate	\$250.00
The all around best and most affordable SMALL external wastegate available. Comes with flanges and gaskets	
Turbonetics Deltagate External Wastergate Cast iron T3 exhaust manifold	\$395.00
The Best and Most affordable BIG Wastegate available. Comes with flanges and gaskets	
Spearco Intercooler Upgrade	\$725.00
A bolt on Spearco intercooler kit for all years of Starion and Conquest. Less than ½ psi drop at 18 psi boost and a 30% reduction in inlet air temp. 3.5" core with mounting brackets and pipes for a direct bolt on replacement.	
When we do our TEC-II systems in house as a complete install we can relocate the intercooler plumbing to come up the left side under the battery and drop into the throttle body. This shortens the plumbing a bit but most importantly it keeps it away from the heat of the turbo. We do not offer this as a kit yet but probably will sometime in the future. It does require losing the windshield washer bottle and trimming the battery tray. It will work with the A/C and can be done in 2.25" plumbing. Our Intercooler upgrade can be ordered set up for this if you want to do your plumbing this way. It is no extra charge.	
Over the valve cover pipe with HKS Racing Bypass valve	\$299.00
Intercooler Plumbing Kit	\$395.00
Complete mandrel bent plumbing kit with silicone hose couplers to replace all the stock flex hoses. Stock Diameter tubing. Over the valve cover pipe flows 30% more than stock flat pipe. Complete kit from Turbo, to Intercooler, to Throttle body.	
Over The Valve Cover pipe only.	\$125.00
Replaces the flat stupid factory pipe and the cloth hose attached to it. Also available with HKS Racing bypass valve attached. \$299.00	
Complete package with plumbing kit, OVC pipe and Racing Bypass valve.	\$450.00
Dial-A-Boost manual boost Controller	\$65.00
Your basic manual boost controller. Mount under hood or under dash. Complete with silicone hose, fittings, and instructions. Easy way to make up to 10 psi increase.	
Electronic Valve Controllers	
HKS EVC-EZ	\$399.00
Very simple and reliable. Will never let you down	
HKS EVC-4	\$550.00
Fuzzy logic, all the bells and whistles. Complicated to learn and use.	
Boost Gauges	
Autometer Z Series boost gauge.	\$65.00
Black bezel gauge with orange needle. Very visible and very attractive.	
Will fit in hole where factory gauge went or can be mounted externally in cup.	
Compressor bypass valves	

A necessary part of any system. Releases the built up boost pressure in the system when the throttle is slammed shut either while shifting or decelerating. Keeps turbo spooled up and eliminates boost spikes in the compressor housing that can ruin the turbo or shorten its life drastically.

HKS Racing Bypass Valve:

With Tee pipe to clamp into your stock cloth hose \$229.00

With complete over the valve cover pipe and Purosil connectors \$299.00

For all systems, but a must for T3/T4 and Super60 upgrades or anyone drag or road racing the car and running more than 15 psi boost.

Exhaust System and Manifolds

We recommend a 2.5" all the way back, no cats. with a 3" inlet and outlet 6" round Walker Ultra-Flo muffler. This is not smog legal and therefore should only be done on cars that are only driven on the track. When driving on the highway always run your cat under the car. We offer High Flow replacement cats for under the car in both 2.5" and 3" diameters. We do not believe in 3" pipe systems for Street Starions. We don't want to argue with everyone so I will say that... Yes we feel a 3" system will make more power on an extremely modified car running big turbos and big boost... But on a mild street car it will cause poor off boost driveability and laggy response. 2.5" is sufficient for all street systems up to the high 300 HP levels. We run 2.5" from the Turbo back through a 2.5" catalytic under the car and exit through a 3" muffler. This gives good response and sound while allowing a very free flow system. We will be making some bolt on exhaust systems for the StarQuest in the near future. We will keep you posted. For now we supply the components to do your own.

Pre-Cat Replacement pipe. (2.5" Mandrel bent Downpipe.)

With 3 wire heated O2 sensor \$175.00

With 1 wire replacement O2 sensor \$159.00

A bolt on mandrel bent 2.5" downpipe to replace the stock pre-cat. For RACING and OFFROAD USE ONLY. 2-3 psi and 10-15 hp increase just bolting it on. Has screw in O2 sensor port for standard O2 sensors. We recommend using a 3 wire heated sensor.

Oxygen Sensors

1 wire O2 sensor \$45.00

3 wire heated O2 sensor \$69.00

3 wire heated O2 sensor with 2 bolt flange plate \$79.00

Another thing to try with the stock F.I. system is to put a toggle switch across the input from the O2 sensor to the ECU (just splice it in right where it plugs in in the engine compartment on the right side above the ABS) and turn the O2 off under hard driving and high boost conditions. This will usually keep the car a bit richer as the O2 is not trying to correct the mixture.

3" Rear mufflers

All Stainless Steel Walker Ultra-Flow with 3" chrome pencil tip \$219.00

Galvanized Steel Walker Mega-Flow with 3" chrome pencil tip \$149.00

High Flow Under Car Catalytic Converters.

2.5" Weld in \$135.00

3" Weld in \$150.00

Stock replacement exhaust manifold (NEW.) Includes gasket) \$219.00

Ported and stress relieved stock exhaust manifold \$310.00

Longer life and better flow.

Exhaust manifold for T3/T4 \$350.00

Ready to bolt-on

Exhaust manifold for T3/T4 for external wastegate \$450.00

Standard Delta Gate or Race gate.

Stainless steel exhaust manifold gasket \$18.95

Stainless steel Turbo flange gasket	
For Mits Turbo	\$10.00
For T3/T4	\$6.50
2400 degree High Heat coating inside and out for any exhaust manifold	\$165.00

Engine Management , FCD's and AIC systems:

Fuel Cut Defencer for 1983-1986 ONLY.	\$169.00
We promise you it will not work on the 1987 ECU. Don't try it, you'll be pissed.	
Electromotive TEC-II management system.	\$1695.00
All sensors and software programming license.	
Includes trigger wheel and mag pickup.	
HALTECH F9A Fuel management system only	\$1095.00
Complete with all sensors, software, and harness	
HALTECH E6A Fuel and Ignition management system	\$1695.00
Complete with all sensors, software and wiring harness.	
Machine Your Crank pulley, mount trigger, fabricate trigger brackets	
• For TEC-II	\$150.00
Complete AIC system for Starion / Conquest (all years)	\$950.00
Includes high flow over the valve cover pipe with injector bosses installed	
(2) Fuel injectors. Bosch racing fuel pump. HALTECH AIC controller computer	
Wiring harness. Fuel fittings, hose, Etc. All bolt on.	
AIC Controller Computer Only	\$399.00

Ignition System Gauges, and Misc. Doo-Dads:

8mm Accel Wire set	\$49.00
Super long life, very heat resistant and a great red color. Tailor made.	
NGK Plug wire set	\$39.00
A great replacement wire at tune up time	
Distributor Cap and Rotor	\$14.95
Bosch Red Coil	\$45.00
Our favorite high output ignition coil. Better than MSD Blaster	
NGK BP7ES Spark Plugs	\$1.99 ea.
One step colder than stock for higher than stock boost conditions	
Oil filter Japanese replacement oil filter. Correct drainback style	\$5.50
Autometer Boost gauge	\$65.00
Mount in a cup or fit in stock dash location. Very visible gauge with a black face and orange pointer.	

Engine parts and machine work:

We do have complete engine building services and can build you a complete engine, a short block, complete cylinder head, whatever you want. Call, Fax or e-mail what you are looking for and we will quote you.

Cylinder Head Prep / Camshafts, Intake Manifold and Throttle Body:

*Clean. Bead blast, pressure test, inspect for cracks	\$50.00
This gets done before we will work on any head unless it is a new casting.	
*Street port and polish	\$280.00
What we recommend for anything up to 350hp that is daily driven and needs fast spool-up and a broad torque band	

Race port and polish	\$400.00
For all out performance. Lose a little down low but it sure breathes good up high. Don't bother unless you are using at least a Super60 T3 upgrade or T3/T4 setup.	
Match port intake manifold to head	\$40.00
Enlarge Stock Throttle body 5mm	\$250.00
Open up stock intake for big throttle body	\$40.00
Weld up and flow intake manifold under throttle body	\$80.00
Port upper throttle body (injector) housing	\$40.00
Remove / Weld water heat passages from intake manifold	\$75.00
Eliminates the hot water running through intake manifold. Ambient temp is high enough to keep the manifold from freezing or the fuel puddling and dropping out.	
Stainless Steel Valves.	\$28.00 ea.
Available in standard or +1mm oversize. 1 piece swirl polished valve for extreme use, Nitrous engines and extended 18+ psi boost applications.	
Lash caps for use with stainless steel valves	\$5.00 ea.
Stock replacement valves	
Intake	\$10.00
Exhaust	\$11.95
Camshaft upgrade. 065-34 Mechanical cam or HR70 Hydraulic	
New. No core needed	\$199.00 NEW
Grind Your Core. Send it in. We grind it and return it.	\$129.00
This cam has been developed and is the only cam we recommend for the hydraulic lifter head. Broad power band, good idle. +18hp with T3/T4 kit and +13hp with Super60 Upgrade.	
Dual Racing valve springs with new retainers	\$139.00
To be used only with Mechanical Lifter rocker assembly.	
H/D Single valve springs.	\$69.00
For use with hydraulic or mechanical lifter rockers. This is what comes in our Street Prepared head.	
Rebuild your rocker assembly	
Rebuilding rocker assemblies includes re-bushing rockers, refacing rockers and re-finishing rocker shafts.	
Mechanical	\$149.00
Hydraulic	\$149.00
Adjustable timing gear (+ or – 6 degrees)	\$199.00
3 angle racing valve job with hand lap and back cut on all valves	\$135.00
All new valve guides	\$120.00
Blanchard grind surface	\$40.00
Weld corroded water passages	Free when porting head. Otherwise \$40.00
Crack Repair	
Yes, We can repair most cracked heads to better than new. Depends on where the crack is and how corroded the casting is.	
	First Crack \$250.00
	Each after \$100.00
Valve lifters	\$16.00 ea.
Hardened hydraulic lifters. Seem to be quieter and longer lasting in high RPM engines.	
Head bolts.	
You have to replace them every time the head is removed (Unless you already have the ARP studs which can be re-used.)	
Stock Replacement Head Bolts	\$59.00 set
H/D Head bolts (10 lbs more torque than stock.)	\$79.00 set
ARP Head Stud kit	\$119.00 set

The best bit of insurance against blowing head gaskets. No block deck distortion. Spreads load over head surface. Allows 80 ft.lb.Torque.

Heavy Duty Head Gasket	\$45.00
Better heat qualities than stock gasket. Composition style gasket. No Re-torque Needed	
Complete Head gasket set with H/D Gasket	\$95.00
Cylinder head to block dowels	\$3.00 ea

Block Assembly and components:

Fortunately you are starting off with a very strong assembly. Other then raising the compression all this work is for reliability and high rpm smoothness. As with the head section the items marked with an * are what we recommend for a performance buildup that can withstand 400hp reliably for drag racing. Endurance road race application with Rpm's over 7500 for any length of time require a different approach. If this is what you are doing with your car call us for details.

*Forged JE Piston sets.	\$475.00
Lightweight but extremely strong low expansion forged pistons in any oversize or compression ratio. We use 8.0:1 +.040 overbore in all our engines unless someone wants a big bore or a stock compression engine. Complete with lightweight wrist pins and pin fit for floaters. Con rod small ends must be bushed for floater style wrist pins.	
Total -Seal Piston Rings	\$139.00
The only real choice in piston rings. They cost a bit more but they work a lot better.	
JE Piston Set and Total-Seal ring Combo	\$575.00
Hastings Piston Rings	\$89.00
Great stock replacement rings at a reasonable price	
Race prepped connecting rods	\$350.00 set
Exchange or your core basis only. \$100.00 core charge	
The stock rod is strong enough for almost any use once it is prepared. Shot peened, beam polished, resized big ends, small ends bushed for floaters, New rod bolts, magnafluxed, balanced.	
Crankshaft index ground and oil holes chamfered	\$95.00
Crankshaft Nitride hardened	\$120.00
Balance shaft eliminator kit	\$69.00
Higher oil pressure, less parasitic drag, less timing stuff to buy	
Timing chain kit for use with eliminator	
Heavy-Duty Timing chain, tensioner, rails, crank and cam gears	\$98.00
Electronically balance complete assembly from front pulley to clutch cover	\$150.00
High volume oil pump	\$229.00
Stock replacement oil pump	\$199.00
Clevite 77 Rod and Main bearing sets (Std, .010, .020)	\$109.00
Felpro Lower end gasket set	\$45.00

Complete Engines:

We offer so many combinations of complete engines that it is impossible to list them all. Here are some of the common combinations. All engine prices are based on using your rebuildable core. If you do not have a good core or you want to buy an engine outright with no exchange add \$450.00 to the pricing. You can then keep all your old stuff and keep driving your car while you wait for your new engine to be built and shipped. All complete engine include our NEW Non-Jet valve head casting. We will not build any complete engines using an old head core. We can also do any combination you might want, contact us for pricing and details.

Stage-3 Engine:**\$3800.00**

Full-Tilt street and drag race engine. For T3/T4 and NOS. Your choice of compression ratio. JE pistons, Total-Seals, race prepped rods, Race prepped crank, New head casting, Race Ported and polished, Racing Camshaft and dual valve spring upgrades, ARP head studs and rod bolts, Lightened flywheel with Pro-Grip Race clutch, Balance shaft eliminator. Balanced and blueprinted. All new timing components and high volume oil pump. Assembled valve cover to oil pan.

For Forged Connecting rods add \$600.00

For ceramic coating on pistons and valves add \$200.00

Performance Street Engine:**\$3000.00**

Excellent street and occasional race use. Very reliable in the low 300 HP range. Great for use with T3/T4. 8.0:1 compression

Forged JE pistons. Total-Seal rings. Rods rebuilt and bushed for floaters with ARP rod bolts. Crank Turned and micropolished. New non-jet valve head casting. Street ported and polished with ARP head studs. Street cam upgrade with H/D single valve springs. Balance shaft eliminator with complete rotating assembly electronically balanced. Lightened stock flywheel with H/D street clutch. All new timing components and standard oil pump.

Standard Street Rebuild:**\$2800.00**

This is the standard stuff we do to rebuild a Starion/Conquest engine for reliable street use with mild add on upgrades and no more then 12-14 psi boost with fairly small turbos (Stock Turbo or Mits Sport 14G units)

Cast replacement pistons with Total-Seal rings. Rods resized and ARP bolts installed. Crank turned and micropolished. Balance shafts eliminated and complete assembly balanced. New Non-Jet Valve head casting. Stock camshaft and H/D single valve springs. New H/D head bolts. Flywheel Lightened.

Coatings:

2200 degree coating on piston tops and bottoms (per piston) \$38.00 ea.

Includes moly coating on skirts. A must for engines with Turbo and NOS

High heat coating on Intake and exhaust valves \$8.00 ea.

Clutch and Flywheel:

You can make lots of HP but if the clutch slips it does no good. We offer our own Pro-Grip Race clutches for street and race. All clutches are sold as complete assemblies with Plate, Disc, Release brg, and Pilot brg. Discs are available individually. Available for both the early (225mm) and late (240mm) flywheels. We also sell standard replacement clutch kits for every day cars without unusual power demands.

Stock replacement clutch. \$225.00

All new Daikin Japanese parts, No rebuilds. Good Stuff

Heavy Duty Street clutch \$250.00

The same pressure plate as our Pro-Grip clutch but with a more streetable disc.

Street pressure Pro-Grip clutch kit

For street and occasional drag strip use. For up to 275 hp \$325.00

Race Pressure Pro-Grip clutch kit \$390.00

Okay for street. A bit grabby but you'll get used to it. Tested in repeated 12 sec runs.

Lightened stock flywheels. \$150.00 exchange

\$100.00 core charge. Both early and late styles

This is the best combination of weight and inertia. A super lightweight flywheel will rev up faster but it will not maintain boost between shifts and can cause surging at a steady light throttle. We lighten, surface, step and zero balance your stock flywheel. We can usually get 10-11 lbs. Off and still maintain plenty of strength.

Cooling System and Upgrades

The cooling system and fans are the cause of more grief and cracked cylinder heads. You must make sure the cooling system is working properly. Contrary to popular belief a Starion does not run hot. Even on a 100 degree Southern California afternoon with the A/C on it should not even get to $\frac{3}{4}$ on the gauge. The biggest problem we encounter is age. The radiators are getting old and are 15%-20% clogged. They work fine until you start to make some HP then or get stuck in traffic on a hot day, then up go the temp and there go the cylinder head. If your radiator has not been serviced any time in recent history, take it to a radiator shop and have it professionally cleaned. If the core is bad, replace it or upgrade it.

3 Row Radiator Upgrade \$299.00 exchange.

This will cure your overheating problems. 3 Row core into stock taks for a totally bolt-in 40% increase in cooling capacity. \$150.00 core charge until we receive your old radiator back.

Cooling fan relay kit \$50.00

We are very proud of this simple little upgrade. Uses your stock low temp fan switch but replaces the rest of the stock electronic controls. Turns both inner fans on simultaneously with much more power than the stock relays provide. Higher fan RPM and better cooling at lower temps. Also hooks the A/C fan directly to the compressor to insure it comes on whenever the A/C is operating. A must for cooling and the life of you're a/c components.

Suspension and Brakes

Although these cars handle and stop pretty good stock there is always room for improvement. As you add more power and top speed the need for better stopping and handling becomes apparent. We offer a variety of options for street, strip, and autocross / road race use.

Street / Autocross:

KYB Gas shocks

Front \$65.00 ea. Rear \$95.00 ea.

Tokico Gas Shocks. (Standard valving)

Front \$79.00 ea. Rear \$109.00 ea.

Sway bar set. 25mm front. 21mm rear. \$325.00

Lowering Coil spring set. Lowers 1.25" \$249.00

Metal-Master Brake pad set

Front \$49.00 Rear \$39.00

Stainless Steel brake line kit \$99.00

Autocross & Road Race:

Tokico Gas Shocks. (special valving. More rebound dampening.)

Front \$75.00 ea. Rear \$119.00 ea.

Sway bar set. 25mm front. 21mm adjustable rear \$425.00 pr.

Rear 21mm adjustable sway bar only \$275.00

Front adjustable camber plates \$279.00

Coil-Over springs and height adjusters for front			\$275.00
Rear Heavy duty race coils			\$169.00 pr.
Height adjustable rear struts with coil-over springs			\$500.00 pr.
R4 Carbon-Kevlar racing brake pads			
	Front \$149.00	Rear \$139.00	
Stainless steel brake line kit			\$99.00

Safety Equipment:

SCCA Legal Roll bar	\$279.00
Removable diagonal brace add:	\$60.00
SCCA Legal Bolt-In roll cage	\$560.00
+ Shipping by truck freight only !	
5 point harness kit Price is per seat	\$149.00

Okay. That's it.

End of the catalog for now. Of course you will find the order form and wish list right behind this page which you should be sure and make good use of.

Thanks for supporting Top-End Performance. We have been doing this for a little over 15 years in the same location (Well same street anyway. We moved ½ block away about 10 years ago) We really do appreciate it and we hope to continue serving the needs of performance enthusiasts like you for at least another 15 years.

Sincerely,

Steve Nelson and the staff of Top-End. Damon, Scott, David, and Jeff



TOP-END PERFORMANCE

"Performance Engines and Suspension components for Street and Track"

A division of T.E.P. Inc.

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- e-mail: [topend @ racetep.com](mailto:topend@racetep.com) Web: [http:// www.topendperf.com](http://www.topendperf.com)

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Name: _____ Phone: _____

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City, State, Zip: _____

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Credit Card #: _____ Exp: _____

Name on card: _____ Bank: _____

Billing Address if different: _____

Year: _____ How do you want it shipped: _____

What I want : _____
